

REMARKS**A. Status of the Claims and Explanation of the Amendment**

Upon entry of the above amendment Claims 3, 5, 16, 18, 20, 22, 24, 26 and 27 will be pending; Claims 1, 2, 4, 6-15, 17, 19, 21, 23, 25, 28-40 have been cancelled; and Claims 3 and 22 will have been amended.

Claim 3 has been amended to read the “the alkylated naphthalene contains at least naphthalene alkylated by at least two alkyl chains, wherein each alkylate moiety is a C₆ to C₃₀ alkyl chain.” This amendment is made to make clear that some mono alkylated naphthalene may be present, and is supported by the specification, page 5, lines 30-31 that recites: “The alkylated naphthalenes may also be a mixture of mono, di and higher ordered alkylated naphthalenes.” Further, the use of the phrase “at least one . . . alkyl chain” in original claims 17, 19, 21, 23 and 25, respectively provides for a mixture of alkylated naphthalenes. Thus claim 3, as presently amended, requires that “di and higher ordered alkylated naphthalenes” must be present in the composition, but does not exclude some mono alkylated naphthalenes.

Claim 22 has been amended to include a comma before the term “wherein”. No new matter is presented. The present amendment is made to place the claims in condition for allowance and does not provoke a new search. Entry of the amendment is requested.

B. The Amended Claims are Patentable over the Cited References

Claims 3, 5, 16, 18, 20, 22, 24, 26 and 27 have been rejected under 35 U.S.C. 103(a) as being unpatentable over Waddoups et al (6,333,298) (“the Waddoups patent”) in combination with either Dressler et al (4,604,491) (“the Dressler patent”) or Ho et al (5,254,274) (“the Ho patent”), and in further view of Le et al (5,602,086) (“the Le patent”). Applicants respectfully traverse this rejection.

The Office Action acknowledges that the Waddoups patent teaches a composition that includes a Group III base oil, but does not teach the use of naphthalenes alkylated by at least two alkyl chains, where the alkylate moiety is a C₆ to C₃₀ alkyl chain. The Office Action first discusses Waddoups, and states:

Waddoups [] disclose a molybdenum-free lubricating oil composition [] which comprises (a) a base stock oil compound of at least 50 wt.% mineral oil []; (b) at least one calcium detergent and (c) at least one organic friction modifier. See column 1, lines 30-45. [] the preferred base stock oils are (a) Group III base stocks or (b) blends of Group III base stock oils with Group I, Group II or Group IV base stocks. (emphasis added)

Then, the Office Action relies on the secondary and tertiary teachings of Dressler or Ho, and Le, in an attempt to remedy the deficiency of the Waddoups patent, e.g., the failure of Waddoups to disclose applicants' claimed alkylated naphthalenes:

Applicants' invention differs from Waddoups by specifying that the synthetic oil blended with the Group III base oil is an alkylated naphthalene which is alkylated by at least two C₆ to C₃₀ alkyl chains. However, such synthetic base oils are known in the art as evidenced by Dressler et al ["Dressler"] and by Ho et al ["Ho"] (emphasis added).

The Office Action states that the motivation for using the Dressler and Ho synthetic oils in lieu of those disclosed by Waddoups is provided by the Waddoups and Le patents:

The examiner recognizes that obviousness can only be established by combining or modifying the teachings of the prior art to produce the claimed invention where there is some teaching, suggestion, or motivation to do so found either in the references themselves or in the knowledge generally available to one of ordinary skill in the art. See *In re Fine*, 837 F.2d 1071, 5 USPQ2d 1596 (Fed. Cir. 1988) and *In re Jones*, 958 F.2d 347, 21 USPQ2d 1941 (Fed. Cir. 1992). In this case, the motivation relied

on by the examiner is the disclosure in Waddoups allowing for the addition of synthetic base oils to the composition such as alkylated polyphenyls. Naphthalenes are an example of polyphenyls. Further, Le et al ["Le"] is added to show that alkylated aromatic base fluids, such as alkylated naphthalenes, are known to be blending stocks with other lubricating base oils such as polyalphaolefin base fluids. (emphasis added)

The Applicants disagree that there is motivation to make the suggested modification. The Applicants do not take issue with whether alkylated naphthalenes, such as those taught by Dressler or Ho, were known at the time of Applicants' invention. What is at issue is why one of ordinary skill in the art having Waddoups' general teaching of using "other base stock oils," that includes numerous broad generic classes of compounds, each of which on its own encompasses possibly hundreds, if not thousands, of different compounds, would be directed to using Applicants' claimed alkylated naphthalenes, absent Applicants' suggestion to do so. See Waddoups at column 2, lines 32-42:

mineral oils and vegetable oils,
oils derived from coal and shale,
polymerized and interpolymerized olefins such as
chlorinated polybutylenes,
alkylbenzenes,
alkylated polyphenyls,
alkylated diphenyl ethers,
alkylene oxide polymers,
fatty acid esters,
polyol esters,
oxo acid esters of glycols,

esters of dicarboxylic acid with monohydric and polyhydric alcohols such as dibutyl adipate, didecyl phthalate and the like.

The mere reference to polyphenyl compounds, in and of itself, provides no such guidance, direction or motivation.

In any event, there is another distinction between the claimed invention and the Waddoups patent, alone or when combined with the secondary and tertiary teachings of Dressler, Ho and Le. The Waddoups patent makes clear that the “Waddoups” invention *requires* the presence of a calcium detergent (emphasis added):

The present invention requires the presence of at least one calcium detergent. Detergents aid in reducing deposits that build up in an engine and act as an acid neutralizer or rust inhibitor. This in turn reduces engine wear and corrosion. The use of a calcium detergent in combination with the base stock oils in the composition of this invention offers fuel economy advantages as demonstrated by coefficient of friction data.

Thus, Waddoups modified as suggested by the Office Action would result in a composition that necessarily includes “at least one calcium detergent.”

However, independent application claim 3 and the claims dependent thereon are directed to a composition **consisting essentially of** Group III base oils and an alkylated naphthalene. Thus, Applicants’ use of the transitional phrase “consisting essentially of” excludes the **required** calcium detergent of the Waddoups patent. Applicants submit herewith the declaration of Dr. Edward T. Hessell under 37 C.F.R. § 1.132 (“the Hessell declaration”). The Hessell declaration demonstrates that the addition of Waddoups’ required “calcium detergent” adversely affects the water separation properties of a base III oil and alkylated naphthalene composition. Dr. Hessell had two sets of examples prepared. In a first set, compositions in accordance with the present invention were prepared:

Under my direction, lubricant compositions representative of those described in U.S. Patent Application 09/898,844 were prepared, i.e., Example A, Example B and Example C. The base oil combinations of a Group III oil and alkylated naphthalene covered a range of 50-90 wt % with regard to the Group III component:

Example A included 50 wt. % of a Group III base oil;

Example B included 70 wt. % of a Group III base oil;
and

Example C included 90 wt. % of a Group III base oil.

In Examples A, B and C, the alkylated naphthalene is an example of a commercial embodiment of the naphthalene claimed in U.S. Patent Application 09/898,844.

In a second set of examples, the compositions components according to the invention were modified to include the required calcium detergent of the Waddoups patent:

Comparative examples were prepared, and are designated Examples Comp A, Comp B, and Comp C. The comparative examples Comp A, Comp B and Comp C have similar quantities of the Group III base oil and alkylated naphthalene as Examples A, B and C, but have been adjusted to contain a 400 TBN overbased calcium sulfonate, as required and described by the Waddoups patent at column 2, lines 60-63 of. The concentration of the overbased calcium sulfonate was adjusted to the minimum value as specified in Waddoups patent, column 3, line 32-34 (0.112% calcium).

The six examples prepared under Dr. Hessel's supervision were evaluated using ASTM Test D 1401:

A test 40 mL sample of the lubricant composition is vigorously blended with an equal volume of distilled water for 5 minutes at 54 °C in a graduated cylinder. The time required for the emulsion thus formed to separate is recorded in 5 minute increments. If complete separation or emulsion reduction to 3 mL or less does not occur after standing for 30 minutes or some other specification time limit, the volumes of oil, water, and emulsion remaining at the time are reported in milliliters (mL) in the order mL oil/mL water/mL emulsion. The

complete details of this test method can be found in "Annual Book of ASTM Standards Section 5, Petroleum Products , Lubricants, and Fossil Fuels", Vol. 05.01, pages 560-563, 2007, ASTM International, West Conshohocken, PA.

The results of Dr. Hessel's analyses are found in Table 5, at page 7, of the Declaration, For each composition containing Waddoups' required calcium detergent, separation did not occur, even after 60 minutes. In contrast, the compositions without the detergent separated in less than 5 minutes. Thus, the addition of Waddoups' calcium detergent to a composition of a Group III base oil and alkylated naphthalene adversely affects the water separation property of the composition.

Therefore, for the reasons given above, the rejection of the pending claims in view of the combination of Waddoups and Dressler or Ho, and further in view of Lee, is improper and should be withdrawn. Reconsideration for the above reasons is respectfully requested.

Applicants submit that the amendment presented claims are allowable. An early allowance is earnestly requested.

C. Conclusion

Based on the foregoing amendments and remarks, Applicants respectfully request reconsideration and withdrawal of the rejection of claims and allowance of this application.

AUTHORIZATION


The Commissioner is hereby authorized to charge any additional fees which may be required for consideration of this Amendment to Deposit Account No. **13-4500**, Order No. 0444-4083US1.

In the event that an extension of time is required, the Commissioner is requested to grant a petition for that extension of time which is required to make this response timely and is hereby authorized to charge any fee for such an extension of time or credit any overpayment for an extension of time to Deposit Account No. **13-4500**, Order No. 0444-4083US1.

Respectfully submitted,
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